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**Sent:** Wed 7/19/2017 7:43:59 PM  
**Subject:** NCEA Weekly Report for July 19, 2017  
NCEA 30 Day Outlook 7-19-2017.docx

## **National Center for Environmental Assessment Weekly Report for July 19, 2017**

Notables listed below and 30-day Outlook attached.

### **FOR ORD IOAA's AWARENESS**

**Notice of NAAQS Proposed Rulemaking.** On July 14, a Notice of Proposed Rulemaking for the Primary National Ambient Air Quality Standards (NAAQS) for Oxides of Nitrogen was signed by the Administrator. The Administrator's proposed decision is to retain the current primary NO<sub>2</sub> standards. Leading up to the signature, NCEA'S ISA Team participated in multiple calls with OAR/OAQPS, OP, OGC, and the Office of Information and Regulatory Affairs (OIRA) of the Office of Management and Budget (OMB) to provide support in discussions related to the science evidence behind the proposal. Moving forward, there is a 60-day public comment period on the proposal with a court-ordered, final rule signature deadline of April 6, 2018.

### **PUBLIC MEETINGS**

**California EPA.** On July 20, NCEA scientists and OAR/OAQPS met with California EPA Office of Environmental Health Hazard Assessment (OEHHA) representatives to discuss OEHHA's updated Reference Exposure Level (REL) for benzene. This meeting is important to OAQPS since they often use RELs in their quantitative risk assessments to support national rulemakings.

**NAAQS and Benefits Analysis Presentation.** On July 26, 2017, NCEA's Tom Luben will deliver a presentation entitled "Overview of National Ambient Air Quality Standards (NAAQS) and Benefits Analysis" via webinar to staff at the Bolivian Ministry of Health in Sucre, Bolivia. Organized by the Clean Air Institute, a non-profit organization dedicated to improving air quality

in Latin America, the webinar is aimed at providing information and introducing tools that may aid the Ministry of Health in developing air quality management plans for the city of Cochabamba and the country as a whole.

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### **WITHIN EPA**

**IRIS and TSCA.** Starting July 19, NCEA will be meeting weekly with OCSPP/OPPT to discuss IRIS systematic review workflows as part of our efforts to provide support for TSCA. The meetings are currently scheduled until September.

**Biofuels.** On July 24, Christopher Clark will be presenting to the Office of Transportation and Air Quality (OTAQ) on recent research findings related to agricultural expansion and intensification in the U.S. since the Energy Information and Security Act of 2007. This is an information exchange with OTAQ in support of the Biofuels Report to Congress and is at the invitation of OTAQ (Washington, DC).

**Minnesota Iron Mine.** Region 5 requested a call with Susan Cormier to discuss a recent (2/4/2016) review of a Johnson and Johnson Report on an iron mine in Minnesota. The review and analyses may be relevant to a proposed copper and nickel mine in Minnesota. A conference call is set for July 27 to discuss conductivity issues downstream of the proposed mining project.

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### **RECOGNITION**

**Best poster award at the OpenTox USA 2017.** The poster “Integrating Human and Ecological Data into Cumulative Risk Assessment through the Aggregate Exposure Pathway (AEP) and Adverse Outcome Pathway (AOP) Frameworks” presented by David Hines, Stephen Edwards, Rory Conolly and Annie Jarabek won the best poster award at the OpenTox USA 2017 meeting held July 12 – 13, 2017 in Durham, NC. The case study illustrates how the AEP-AOP construct advances cumulative risk assessment by 1) organizing data, 2) providing a mechanistic framework for integrating data on chemicals with similar effects and on endpoints across species, 3) highlighting data gaps, and 4) facilitating analyses and visualizations of risk. This work falls partially under HHRA Task 6.1 (3.231).

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**Wake County Teacher Summer STEM program talk.** On July 13, Jeff Herrick, Emmi Felker-Quinn, and Alan Talhelm gave a short talk to the Wake County Teacher Summer STEM program on ecological science, ecosystem services, and activities for school students. The talk was

presented on July 13, 2017 at EPA-RTP as part of a larger all day program for Wake County, NC science teachers.

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**Web of Science Highly Cited Publication.** Jordan West and Susan Julius are authors on the paper “Improving Conservation Outcomes with a New Paradigm for Understanding Species' Fundamental and Realized Adaptive Capacity,” *Conservation Letters* 9(2):131-137, DOI: 10.1111/conl.12190, published: MAR-APR 2016). They were notified by Web of Science that as of January/February 2017, this paper received enough citations to place it in the top 1% of its academic field based on a highly cited threshold for the field and publication year.

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## **PUBLICATIONS**

**Terrestrial acidification and ecosystem services: effects of acid rain on bunnies, baseball, and Christmas trees.** Authors in order: I.C. Irvine, T. Greaver, J. Phelan, R.D. Sabo (ORISE) and G. Van Houtven. Published in *Ecosphere* on June 22, 2017. Often termed “acid rain,” combined nitrogen and sulfur deposition can directly and indirectly impact the condition and health of forest ecosystems. Researchers use critical loads (CLs) to describe response thresholds, and recent studies on acid-sensitive biological indicators show that forests continue to be at risk from terrestrial acidification. However, rarely are impacts translated into changes in “ecosystem services” that impact human well-being and the relevance of this research to the general public is seldom communicated in terms that can motivate action to protect valuable resources. Two anecdotes from this investigation include the relationship between (1) balsam fir as a popular Christmas tree and habitat for the snowshoe hare, a favorite of wildlife viewers, and (2) white ash because it is used for half of all baseball bats, fine wood products, and musical instruments. Thus, rather than focusing on biological indicators that may only be understood or appreciated by specific stakeholders or experts, this approach extends the analysis to include impacts on Final Ecosystem Goods and Services (FEGS) and on humans.

DOI: 10.1002/ecs2.1857

<http://onlinelibrary.wiley.com/doi/10.1002/ecs2.1857/full>

**Publications in the World Environmental and Water Resources Congress 2017.** Marissa Liang (ORISE) and Susan Julius have recently published two papers in the World Environmental and Water Resources Congress 2017, including:

**I. "Use of GCM Wind Projections in Risk Assessment and Adaptation Planning and Design."** From climate risk assessment to adaptation, model projections of future extreme

climate variables are fundamental for planning and engineering at the local level. For coastal infrastructure in particular, climate change adaptation needs the data of site-specific accurate wind analysis to develop a sound design. In this case study, we examine the ways in which Global Climate Modeling (GCM) projections can be used to develop the design basis for infrastructure under future climate changes. Employing statistical analysis, we verify GCM projections using site specific observations, and quantify how the design value of wind speed would change over time. Our results show that 1) individual GCM simulations underestimate the design values by up to 71.6%, but can be corrected through post-bias correction; 2) design values for low-probability wind events do not have significant temporal changes under future climates, and 3) there are spatial variations in design wind values among different tide gauge locations. These findings help in developing adaptations based on GCM outputs.

<https://doi.org/10.1061/9780784480618.024>

<http://ascelibrary.org/doi/abs/10.1061/9780784480618.024>

**II. "On the Coastal Topography and Storm Surge for Infrastructure Risk Assessment and Adaptation"** To better understand how coastline orientation, together with wind direction, play a role in storm surge height and propagation, we investigated 58 wind-surge events that occurred between the years 1995-2015 near the mouth of Chesapeake Bay, Virginia. We defined and calculated wind angle, and found that the angle between coastline orientation and wind direction directly affects the magnitude of storm surge. Our results provide evidence that the maximum surge height in a wind-surge event is positively related to (1) the percentage of negative wind occurrence and, (2) the absolute value of average wind angle in the surge accumulation period. We recognize that coastline orientation matters to the magnitude of storm surge when storms land from open seas. These results suggest that it is both possible and important to consider coastline orientation when designing protective strategies to address storm surge and flooding damages.

<https://doi.org/10.1061/9780784480618.023>

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